15¢
$5.50 A YEAR
August 23, 1952
VOL. 62, NO. 8, PAGES 113-128

# SCIENCE NEWS LETTER

PUBLIC LIBRARY
AUG 26 1952
DETROIT

THE WEEKLY SUMMARY OF CURRENT SCIENCE

DETROIT PUBLIC LIBRARY
TECHNOLOGY DEPT
5201 WOODWARD AVENUE
DETROIT 2, MICH.
DEC 52 483-789 6

Wandering Cicada

See Page 125

A SCIENCE SERVICE PUBLICATION

PUBLIC HEALTH

# Retail Cotton Not Sterile

**Living microorganisms found in 14.2% of samples of "sterile" cotton bought in Los Angeles stores. More stringent control program advocated.**

➤ STERILE ABSORBENT cotton sold in retail stores is not always sterile. The present control program of the U. S. Food and Drug Administration is "not adequate to assure the consumer of the sterility of each package of market cotton."

This charge is brought by two medical scientists in a report to the *Journal of the American Medical Association* (Aug. 9). They are Dr. John H. Silliker of the University of Rochester, N. Y., School of Medicine and Dentistry, and Dr. Eugene P. Hess of Los Angeles City College, Calif. Their report is based on studies made while both were associated with the University of Southern California.

They bought samples of "sterile" market cotton at retail stores in various parts of Los Angeles. Usually a single four-ounce roll of a nationally prominent brand was bought from each retailer, without mention of the survey.

In their tests of this cotton, they found 12 out of 85 rolls, or 14.2%, were contaminated and had in them microorganisms capable of living.

"These findings," they state, "indicate that there should be a more stringent control program on the part of both the producers and the Food and Drug Administration in the case of "sterile' market cotton."

Because organisms capable of life were found at all different levels in the roll of cotton, they say there is need for a rigorous investigation into the insulation and protection against heat given to bacterial life at the center of cotton, gauze or even a hospital surgical pack.

"The consumer's guarantee of sterility in products labelled 'sterile' lies chiefly with the producer," Drs. Silliker and Hess state. "In the case of 'sterile' market cotton, the control program of the Food and Drug Administration in the Los Angeles area at least, consists of taking random samples at periodic intervals. These are sent to the Federal Drug Administration in Washington, D. C., for sterility testing. Results of these investigations are not available. In view of this, it was decided to make a survey of 'sterile' market cotton to determine whether the present control program is adequate to insure sterility in all packages of cotton."

Deputy Food and Drug Administrator George P. Larrick told SCIENCE SERVICE that although he has not yet seen the Silliker-Hess report, he will make a thorough investigation of the situation and will start by going to see the two scientists.

Since an improvement in the cotton sterilizing process some years ago, so many hundreds of samples have been sterile that the Food and Drug Administration has cut down on the number of samples tested.

Science News Letter, August 23, 1952

MEDICINE

# Treatment of Asthma

➤ THE PATIENT with chronic asthma has a rough enough time without being told that he has an incurable disease he must learn to live with, in the opinion of at least one doctor.

"Nothing could be farther from the truth," this physician, Dr. H. Bernard Tillman of Springfield, Mass., declares in a report in the *New England Journal of Medicine* (July 31).

The patient with long-standing asthma who has developed advanced emphysema, bronchitis and bronchiectasis has irreversible anatomic changes from which the outlook is poor. But Dr. Tillman thinks that this state of affairs can be prevented by proper management.

Treatment, according to his suggestions, is in two phases. The patient gasping for breath in an acute attack of asthma must of course be given treatment that will promptly relieve his air hunger. Commonly used medicines for this are ephedrine, epinephrine, also called adrenalin, and aminophylline; in emergencies, cortisone or ACTH.

But these medicines which relieve symptoms do not give lasting relief. Many asthmatics have had the discouraging experience of being treated with one after another of such symptom-relieving medicines, only to find that each in turn loses its effect.

After the acute attack is over, and sometimes the patient in the acute attack is best cared for in a hospital, the patient should go back to his doctor for a thorough examination and tests to determine the cause of the asthma.

Important at this point is a careful history. The doctor needs to know whether the attacks come more often in summer or winter, whether the asthma is worse outdoors or indoors, in dry weather or damp weather. Symptoms outdoors, especially in dry weather, suggest pollens as a cause. If damp weather makes the asthma worse, molds may be the cause.

Careful examination is needed, also, to see whether there is any focus of infection in teeth, sinuses or elsewhere that may be causing the trouble. When the cause has been discovered, treatment can be planned to stop the asthma.

Science News Letter, August 23, 1952

BIOLOGY

## Quest for Whale Hair Completes Collection

➤ THERE ARE now whale hairs, about 30 of them, in the world famous hair collection of Dr. Leon A. Hausman, Rutgers University biologist and authority on hair.

Two months ago Dr. Hausman broadcast an appeal for whale hairs while being interviewed by Watson Davis, director of SCIENCE SERVICE, on his regular Adventures in Science program over the CBS Radio Network. He had thousands of different kinds of hair, but none from whales. (See SNL, July 12, p. 21.)

D. H. Bates of Portland, Ore., answered the call for the rare hairs by telling the British Columbia Packers, Ltd. of Whaling Station, Coal Harbour, B. C., of the need.

To Dr. Hausman at Rutgers were sent 10 hairs from each of a 63-foot blue whale, a 44-foot humpback whale and a 58-foot finback whale. The donor told Dr. Hausman that these are about all the hairs there are on a whale, situated directly on the point of the nose.

Science News Letter, August 23, 1952

MEDICINE

## Pounds of Liver Daily Raise White Blood Cells

➤ SOME MEDICAL students at the University of Cincinnati each ate one and one-half pounds of raw calves' liver daily for four weeks as part of a scientific study.

As a result, the number of one kind of white blood cells, called eosinophils, increased in their blood to far above normal and stayed at that high level for two and a half to three years. The students remained well and free from disease during all that time.

The experiment was reported by Dr. R. C. Muehrcke of Cincinnati General Hospital at a conference on eosinophils held at the Jackson Laboratory, Bar Harbor, Me.

The eosinophil cell in the blood is one of the mysteries medical scientists are currently trying to solve. Only a small percentage of white blood cells is made up of eosinophils, but these small-sized, small-numbered cells are believed implicated in leukemia, asthma, eczema, arthritis, anemia, and even perhaps, mental disease and cancer. Some diseases cause an increase and others a decrease. The number of them is believed to indicate activity of the pituitary and adrenal glands.

In the liver study Dr. Muehrcke also found that cooked, pureed and raw beef liver, and 35 different liver extracts did not cause any increase in numbers of eosinophils.

Science News Letter, August 23, 1952

RADIO-ASTRONOMY

# Larger Radio Telescopes

**Largest radio telescope in the world, being built in England, and other instruments to study "hissing" stars discussed at international radio meeting.**

➤ THE MYSTERY of "radio stars" may be solved with the help of enormous new radio telescopes under construction or recently built.

These new telescopes were discussed at the General Assembly of the Union Radio-Scientifique Internationale meeting in Sydney, Australia. Designed especially to pick up the cosmic hisses that come to us from the sun and stars in the microwave region of radio waves, these radio telescopes are teaching us much about the universe.

The world's largest radio telescope, a basket-shaped affair 250 feet across, is being built for Manchester University, England, at Jodrell Bank, Cheshire. The platform on which the telescope will rotate will be 310 feet across. The instrument will be 185 feet high from its base to the top of the horizontal axis, and the entire telescope will weigh 1,270 tons.

A radio telescope 220 feet in diameter has been in use at Jodrell Bank for several years, but it is fixed in position and thus cannot reach all regions of the sky. The one under construction can be directed at any part of the sky or follow the course of any star.

The most versatile telescope in use today is the 50-foot instrument atop one of the Naval Research Laboratory buildings in Washington, D. C. The reflector of this instrument, which can scan the entire sky, consists of 30 pie-shaped sections, all of solid aluminum, machined to a tolerance of better than 1/32 of an inch.

It is the uniform smoothness of the aluminum surface that makes the instrument capable of pinpointing the source of stellar hisses down to a few minutes of arc, the highest accuracy obtained to date with a single beam. Radio signals from a fraction of an inch in wave length up to several feet, much shorter than those studied by most other instruments, are trapped by this telescope.

A radio telescope being built on Maui Island, T. H., was perhaps more discussed than any other by radio astronomers gathered at the Sydney meeting. A number of URSI members stopped by Hawaii on their way to Australia to get a look at the big instrument Grote Reber, formerly with the U. S. National Bureau of Standards, is installing. Because of its location near the ocean, it can be used to study interference of patterns from the combination of direct radiation and that reflected from the sea.

Dish-shaped telescopes such as these are not the only design, however, that is proving of value as a radio telescope. At Ohio State University, for instance, a collection of spirally wound antennas, which when completed will be 160 feet long and only 12 feet across, is already proving its worth.

Another type in use at Cornell University consists of a big rectangular array of a dipole antenna and parallel rods used as reflectors.

New and old, radical and conventional designs for radio telescopes were constantly being discussed at the URSI meeting. Lack of money is the chief difficulty standing in the way of putting some of these ideas into effect, for large radio telescopes cost up to a million dollars or so each.

Some radio astronomers can only dream of bigger and better telescopes while they push their simple instruments to the utmost. Yet some of the most outstanding advances in radio astronomy today are being made on small instruments.

Science News Letter, August 23, 1952

GEOGRAPHY

## Better Land Use to Feed 4 Billion in 2000

➤ A WORLD population of four billion in the year 2000 will probably have enough to eat, but this will be mostly because of better use of lands now under cultivation.

This is the opinion of Dr. George B. Cressey of Syracuse University, N. Y., president of the International Geographical Union, given in an address before the 17th International Geographical Congress in Washington.

Dr. Cressey said that it is doubtful whether much food can soon come economically from new land. In Australia, Canada, the United States and Soviet Russia, the farming area has about reached its limits.

"If the Amazon and Congo or the arctic have crop potentials of large extent," he said, "their exploitation lies well in the future. Meanwhile erosion and soil exhaustion result in the abandonment of impressive acreages."

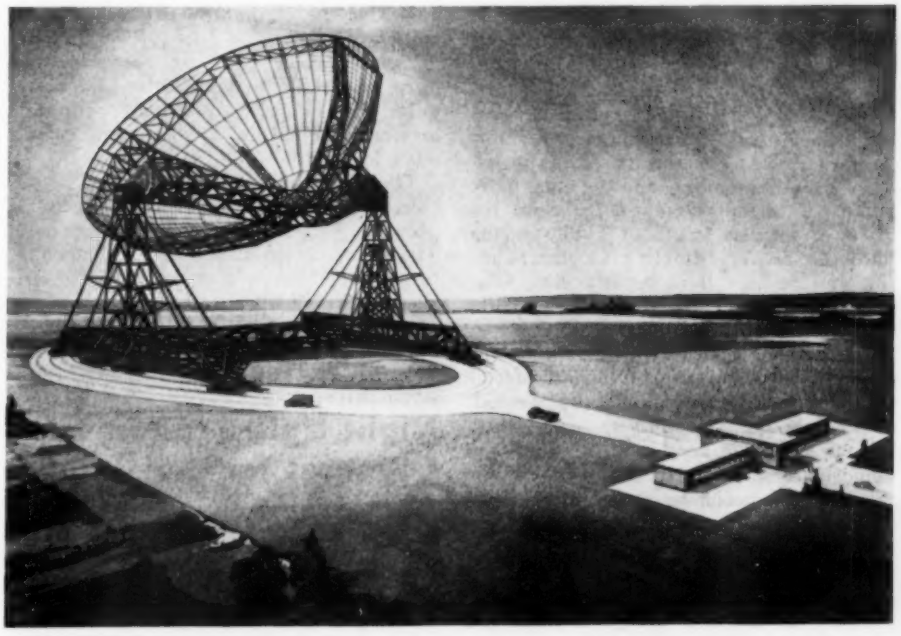
It is quite probable, Dr. Cressey declared, that we may already have passed the peak of total cultivated areas. This need not mean diminished food, for we may secure greater yields through more intensive development of our better land.

"The point is this:" he said, "if more food is needed, and that is obvious, geography cannot offer new land of much value. The good earth is essentially all in use, and the major map boundaries of cultivated land have become stabilized."

Dr. Cressey reported various estimates of how large a population could ultimately be supported by the earth. The largest estimate was 13.5 billion, with the United States having about 800,000,000.

He urged geographers to complete the presently inadequate inventory of land capabilities. Before anyone can predict the potential extent of arable land, or of food supply, or of world population, he pointed out, we must greatly extend our fundamental knowledge of the land itself.

Science News Letter, August 23, 1952



*UNIVERSE EXPLORER—A steerable radio telescope, the world's largest, being built in England for Manchester University, is shown in this drawing. The rotating instrument will search out sources of cosmic "hisses" in the microwave region.*

METEOROLOGY

# Man-Controlled Climate

**"More trouble than atom bomb" is Dr. Ahlmann's opinion of man's possible eventual control of the climate. He advocates intense study of sun's effects.**

➤ "I HOPE man never learns to control the climate of the world, because if he does, it will produce more trouble than the atom bomb."

This was the opinion of Dr. Hans W. Ahlmann, Swedish climatologist and diplomat, given in an interview with SCIENCE SERVICE. Dr. Ahlmann pointed out that different men, nations and continents would have different ideas as to how to control climate and this would make the trouble.

"Look at the difference between the ideas of the tourists and the farmers on rain," he pointed out.

Dr. Ahlmann, who is Swedish ambassador to Norway as well as one of the world's leading climatologists, advocated an intense study of the sun's effects on climate. It is becoming more and more understood, he said, that variations in the sun are responsible for variations in the world climate. But we do not yet know how to measure those variations, he pointed out.

Ultraviolet radiation, sun spots and other physical facts about the sun—we must understand and measure their effects on the various layers of our atmosphere from the stratosphere on down, he declared. Now it is all hypothesis, he said.

"No man can imagine a physical concept and its logical consequences," he emphasized. "We must have facts and measurements."

It was when he was asked whether, after these measurements were made and man came to an understanding of the causes of variations in world climate, man would be able to control his climate, that Dr. Ahlmann said, "I hope not."

He added that the possibility of control of climate was slight. As to rainmaking, the first attempts of man to control at least a part of his climate, Dr. Ahlmann did little more than smile. Man-made rain, he pointed out, falls on the woman's laundry as well as on the farmer's fields.

The climatologist addressed the meeting of the International Geographical Union in Washington.

Science News Letter, August 23, 1952

GERONTOLOGY

# Healthy Elderly People

➤ AN IMPORTANT part of the task of keeping elderly people healthy is to keep them feeling loved and wanted and useful.

Loneliness, according to some authorities, may be as bad as sickness. For that reason old people should be encouraged to form clubs. The clubs can be for bridge or canasta or other games, and for the more active old persons there can be clubs for sports of the less strenuous kind. Or the clubs can be very simple get-togethers for talk and perhaps light refreshments. The important thing is that the clubs will provide companionship.

Psychiatrists believe that the breakdowns of elderly people which send them to mental hospitals can in many cases be prevented. Old people need to learn to accept their limitations and to develop skills within the range of their capabilities. But to do this they need someone to show interest and confidence in their ability to learn new skills.

Most old people want to be independent and live in their own homes as long as possible. In England the government has converted a building into small apartments for aged people who have no families or homes of their own. Here they can live with neighbors of their own age for companionship, instead of having to be in hospitals for the chronically sick or in almshouses.

Elderly people who are encouraged to learn new skills, to keep active and to acquire new interests are happier, and they are less of a burden to their families and more lovable.

Those of you who are not yet in the elderly class should remember that life is growing longer for everyone these days. The smart person starts, while still young, to acquire interests and skills that he can keep on with long after his active working career has ended.

Science News Letter, August 23, 1952

HORTICULTURE

## Night Light Produces Begonias for Christmas

➤ CHRISTMAS CORSAGES or New Year's Eve table decorations containing bright red begonias?

That is what the experiments of Dr. A. M. Kofranek, assistant professor of floriculture at the University of California at Los Angeles, seem to promise for the future.

Tuberous begonias normally bloom in southern California gardens throughout the summer, but are dormant through the winter—even in greenhouses. Dr. Kofranek has been able to produce winter-blooming flowers in the greenhouse by illumination during the night.

The illumination sources are five- and ten-foot candles of light. So that the plants may bloom by Christmas, the period of illumination lasts from three to four hours each night from Oct. 1 on.

This light treatment tends to stretch the plant too much to make it desirable as a pot plant, but the bloom is ideal for a corsage or table decoration.

Science News Letter, August 23, 1952

**SCIENCE NEWS LETTER**

VOL. 62 AUGUST 23, 1952 No. 8

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., NOrth 2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1952, by Science Service, Inc. Republication of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., PEnnsylvania 6-5566, and 360 N. Michigan Ave., Chicago, STate 2-4822.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Edwin G. Conklin, Princeton University; Karl Lark-Horovitz, Purdue University; Kirtley F. Mather, Harvard University. Nominated by the National Academy of Sciences: Harlow Shapley, Harvard College Observatory; R. A. Millikan, California Institute of Technology; Homer W. Smith, New York University. Nominated by the National Research Council: Ross G. Harrison, Yale University; Alexander Wetmore, Secretary, Smithsonian Institution; Duane Roller, Hughes Aircraft Co. Nominated by the Journalistic Profession: A. H. Kirchhofer, Buffalo Evening News; Neil H. Swanson, Baltimore Sun Papers; O. W. Riegel, Washington and Lee School of Journalism. Nominated by the E. W. Scripps Estate: Frank R. Ford, San Francisco News; John T. O'Rourke, Washington Daily News; Charles E. Scripps, E. W. Scripps Trust.

Officers—President: Harlow Shapley; Vice President and chairman of Executive Committee: Alexander Wetmore; Treasurer: O. W. Riegel; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, A. C. Monahan, Marjorie Van de Water, Martha G. Morrow, Ann Ewing, Wadsworth Likely, Allen Long. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hallie Jenkins. Production: Priscilla Howe. In London: J. G. Feinberg.

METEOROLOGY

## Electronic Computer to Make Weather Charts

➤ ELECTRONIC "BRAINS" will be making weather forecasts for the Weather Bureau in two or three years.

Meteorologists at the bureau are now making plans to install an electronic computer that will make weather charts predicting the general pattern over the United States for 24 hours ahead. These charts will be transmitted to regional weather offices to provide a new and extremely useful tool in local forecasting.

The computer will be used for the system called numerical forecasting, pioneered at the Institute for Advanced Study at Princeton, N. J. There, information as to present weather conditions over a large area is fed into the computer together with complicated mathematical formula. What comes out is a picture of the same chart as it will be 24 hours from the time of the original data.

The process is still in the experimental stage, but the studies have been successful enough to enable the Weather Bureau to plan on an operational installation.

Actually, eight charts will be prepared each 24 hours. These will represent eight horizontal slices of the atmosphere, beginning at sea level and extending up to about 18,000 feet. Thus indications of vertical as well as horizontal changes will be present on the chart.

The advantage of numerical forecasting is that it can take into account very many more pieces of information about weather conditions than a human forecaster can hold in his brain. With the electronic "brain" and numerical forecasting, local weathermen should be able to make more accurate predictions in the future.

Science News Letter, August 23, 1952

AERONAUTICS

## "Ozone" Lamps Freshen Airplane Cabin Air

➤ TINY LAMPS of walnut size are now being installed under passenger seats in airplanes to kill odors and to freshen the air in the cabin and bring comfort to travelers. They produce ultraviolet rays which in turn generate ozone, a natural deodorizing agent.

These lamps, a product of Westinghouse, use a fixture developed by Aviation Mart Company, Alexandria, Va., which permits them to operate on the 24-volt direct-current electric supply of many planes. This means that the lamps can function when planes are grounded at an airport.

The lamp is known as the Westinghouse Odorout. Planes of All American Airways are now being equipped with Odorouts, and other companies are experimenting with the ultraviolet-ray fresh-air device. Installations are delayed somewhat awaiting approval of the Civil Aeronautics Administration for their use.

Science News Letter, August 23, 1952

*ASSEMBLY-LINE HOUSES—An interior view of one of the thousands of homes being built entirely from pre-cut and pre-drilled materials. The "three-way" fireplace on the left is wood-burning.*

TECHNOLOGY

# Houses Without Saws

➤ THOUSANDS OF workmen swarming over 5,000 acres of one-time farmland are erecting a city designed to have a population near 70,000, yet they do not need a single hand-saw.

A projected 16,000 houses are being built at Levittown, Pa., on an assembly-line basis to house future steel workers of a nearby mill currently under construction, as well as persons working in Trenton, N. J., about eight miles away.

Although the houses are not prefabricated, they are assembled from pre-cut and pre-drilled materials. Many of the most up-to-date gadgets of the house-building business have been worked into their designs.

A special kind of bolt, for instance, replaces 12 nails in roof trusses. And pre-cut slabs of ⅜-inch plywood roof great sections at once. The roof is supported by rafters of lighter construction than usual.

Seam-hidden wallboard walls are sprayed with a two-tone paint. The paint contains tiny flecks of color that blend with a base color to produce a plaster effect when viewed from a distance.

Outside walls are made of large sheets of an asbestos substance said to be "everything-proof" by enthusiastic employees of Levitt and Sons, Inc., of Manhasset, L. J., the town-building firm that already has constructed a similar Levittown on Long Island.

Mostly of the single-story type, the houses have been engineered to utilize the maximum of available space. Closets are screened by split-bamboo sliding curtains instead of doors. That permits a piece of furniture to be set in the space normally occupied by the closet door when open.

The most inexpensive house, costing $9,990 with a lot thrown in, has two regular bedrooms and a living room that can be partly cut off to make bedroom number three. It has two picture windows made of special glass that helps insulate the house from the winter's cold.

A radiant heating system is operated from a small oil burner enclosed in an attractive cabinet situated in the all-electric kitchen. Heating coils are imbedded in the floors of the house. The same heating unit supplies hot water to the kitchen and bathrooms.

At least 13 trees and 43 assorted shrubs, bushes and vines are included to help owners landscape the yards.

From base-slab to roof-shingle, the smaller houses require only 45 days to build. Materials pour into the town at the rate of 40 carloads a day. They are deposited exactly where needed exactly when needed.

In addition to the housing project, this town has been engineered to provide schools, churches and a shopping center for its residents. Playgrounds, swimming pools and even regulation baseball diamonds are included in the over-all plans.

Science News Letter, August 23, 1952

MEDICINE

# Three-Dimensional Movies

**Films of surgical operations, made with two cameras set to take what each eye would see, appear three-dimensional when viewed through polarizers.**

By JANE STAFFORD

➤ MEDICAL MOVIES are going three-dimensional. These are not the men-in-white films you see at your neighborhood theater. The new three-dimensional films, in color, are pictures of surgical operations taken for showing at medical meetings and post-graduate instruction courses for doctors.

So far, there are only two of these new medical pictures. The first was made at the Lahey Clinic in Boston. I just saw a prevue of the second when it was shown before cutting and editing to Dr. Brian Blades and assistants at George Washington University Hospital, Washington. The picture was taken a few weeks ago when Dr. Blades was removing a mediastinal tumor from inside the chest of a woman patient. The tumor in this case was not a cancer but had to be removed because it was pressing against the woman's heart.

To see these movies, the surgeons and I donned polarized viewers — polarizers in light cardboard frames worn like eye-glasses —because for three-dimensional movies your left eye must see the left eye picture and your right eye must see the right eye picture. The two are fused in your brain to give an illusion of depth to the picture you are seeing.

As one of the audience put it, we seemed to be watching the operation through a plate glass window instead of on a motion picture screen. Because of this illusion of depth, we felt we were looking with the surgeon into the patient's chest instead of looking onto a picture of it. We seemed to see rubber gloved fingers reaching into the chest instead of moving across a flat surface of bones and flesh.

The reason we normally see depth, of course, is because we have two eyes set approximately two and one-half inches apart. One eye sees one view of what is in front and the other eye sees another view. The two views are fused in the brain into one view with depth.

To get this depth, or three-dimensional, effect in motion pictures, Floyd A. Ramsdell of the Worcester Film Corporation at Worcester, Mass., uses two cameras set, in this case, a little over one inch apart. One camera takes what the left eye would see and the other what the right eye would see. The two films are taken synchronously and projected synchronously.

The space between the two camera lenses is not the same as the space between two eyes. It must be calculated, Mr. Ramsdell finds, on the basis of the distance from the object being photographed and other factors.

The three-dimensional movie I saw, as well as the one of a stomach operation by Dr. Samuel Marshall of the Lahey Clinic, Boston, were made under a grant from Ethicon Sutures Laboratory. It will be shown to surgeons at the meeting of the American College of Surgeons in New York in September. The Marshall picture is now being shown at medical meetings in Dublin, London and Edinburgh following a tour of surgical meetings in this country.

Science News Letter, August 23, 1952

GENETICS

## Grass-Like Plant as Immediate Corn Ancestor

➤ THE IMMEDIATE ancestor of corn may have been a grass-like plant known as Corn grass, Dr. Ralph W. Singleton of Brookhaven National Laboratory, Upton, N. Y., has found.

If so, the Corn grass was changed to corn by a macromutation, that is, the mutation of one gene in a very decided way. Such a change from a narrow-leaved plant with no ear to one resembling today's corn would probably be spotted immediately by the primitive Indian. The chances are good that this plant would have been cared for and its seeds propagated.

Dr. Singleton bases his suggestion on a Corn grass plant that was found on a farm in New Jersey. This plant was the result of a macromutation of one of today's corn plants to a grass-like structure. If macromutation will work one way, it should also work in reverse, Dr. Singleton believes.

Most scientists have looked for the ancestor of corn by searching for a maize plant only slightly changed by a series of micromutations, or comparatively small changes in the plant's form at any one time.

Beta radiation from radioactive phosphorus and gamma radiation from radioactive cobalt were tried to get the reversed mutation, but neither was successful.

Science News Letter, August 23, 1952

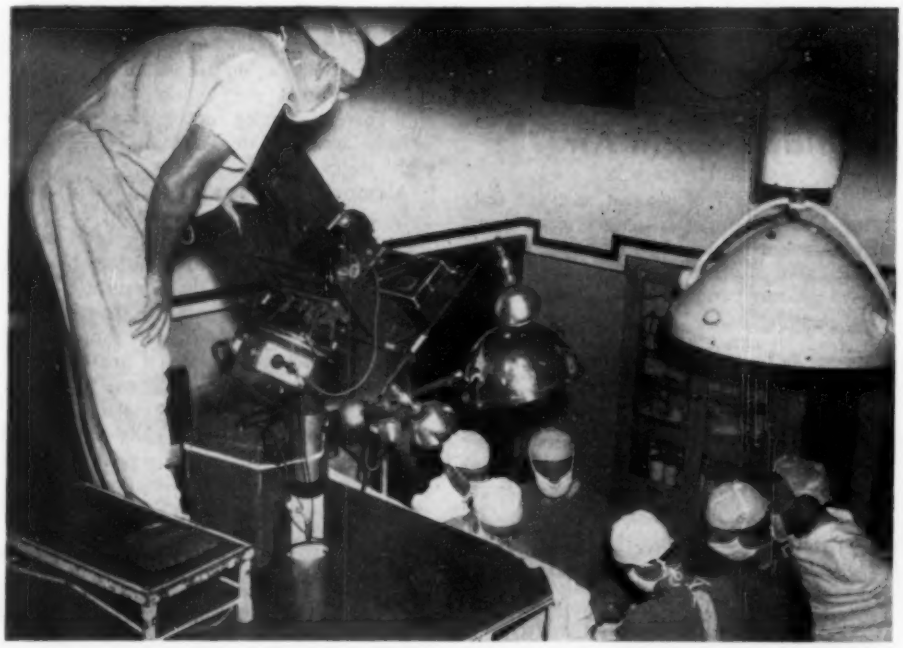
BIOCHEMISTRY

## "Hot Ragweed" Enters Hay Fever Fight

➤ NOW THEY are making "hot" ragweed to help in the fight against hay fever. It probably will not be used as a medicine, but Dr. E. M. K. Geiling and associates of the University of Chicago hope that pollen from the "hot" weeds they are growing will give new knowledge about the course the irritating pollen chemicals take through the body.

This and the mechanism of antihistamine action in checking hay fever symptoms will be studied in experimental animals and maybe, much later, in human hay fever victims.

Science News Letter, August 23, 1952



*THREE-DIMENSIONAL MOVIE—The first surgical operation to be filmed in color with the new three-dimensional camera was a stomach operation performed by Dr. Samuel F. Marshall at the Lahey Clinic, Boston.*

*RADAR–TELEVISION COMBINATION — Spotting planes approaching airports is easier using the bright-tube screen that shows the pips more clearly under normal room light.*

AERONAUTICS

# Combine Radar, Television

➤ TELEVISION NOW aids control men at airports who spot all planes in the air by radar and direct their movements by radio. The television gives a brilliant display of whatever is on the radar screen and, unlike the radar screen, gives a picture that can be viewed in comfort in daylight.

This television-radar combination was perfected at the Technical Development and Evaluation Center maintained by the U. S. Civil Aeronautics Administration in Indianapolis, Ind. The brilliant display given on the television screen makes its unnecessary to house the radar scope under hoods or tents to exclude outside light. The display can be given on as many television scopes as may be needed. In addition, signals show up on the television screens that can not be seen on the radar screen.

An important part of the combination is what is called a memory tube, a device that holds the electrical signals received for a short interval. In this case the memory tube, perfected from an original developed by Radio Corporation of America, is adjustable and will hold signals from two to 30 seconds, long enough to be picked up by the television.

Retention of radar signal images for approximately 20 seconds is required to permit traffic controllers to determine changes in aircraft positions. Ordinary radar scopes retain their images for as much as 60 seconds because they are coated with a special phosphor that continues to glow long after being hit by a stream of electrons. This type of phosphor, however, provides a relatively dim light.

Television tubes, on the other hand, are coated with phosphors which "erase" almost instantly but give off a brilliant light. The memory tube makes a slow-erasing tube unnecessary, and the television tube provides the necessary brilliance for daylight viewing.

Science News Letter, August 23, 1952

MEDICINE

## Help Polio Victims When Traveling Abroad

➤ AMERICANS STRICKEN with poliomyelitis while working, traveling or studying in foreign countries can be helped by the National Foundation for Infantile Paralysis just as are those stricken in the U. S.

Examples of such aid in 1951 are given in the annual report of the Foundation as follows: a 20-year-old missionary teacher in Landore, India, flown back to New York with severe throat involvement; a singer on tour in Panama, flown home by MATS in an iron lung; a Stanford University student, stricken while visiting Mexico with a group of students, and returned in a respirator. This and other help comes from the March of Dimes.

Science News Letter, August 23, 1952

ASTRONOMY

## Telescopes to Be 100% Efficient on the Moon

➤ TELESCOPES WILL be almost 100% efficient when they are installed on the moon, points out Dr. Dinsmore Alter, director of the Griffith Observatory, Los Angeles. With the same instruments that are in use on the earth today, astronomers on the moon should be able to probe twice as far into space.

"Within a few years our astronomers on the moon will observe more than they could in centuries with far larger instruments on the surface of the earth," Dr. Alter stated.

Heavenly bodies can be seen more clearly from the moon than from the earth with its disturbing atmosphere that blurs the surface of the moon and planets, and makes the stars twinkle.

With the black sky of the moon replacing our blue sky, there will be no fogging of photographic plates from the background light of the sky. Thus exposures can be as long as desired. Not only will fainter stars appear, but the additional contrast will make nebulæ and galaxies show up more plainly.

From the moon, stars will appear as tiny, steady points of light. Their small images will make possible more accurate measurements of the distances of the nearer stars. They also will give us better observations of double stars, with a resulting improvement in their calculated orbits.

The sun will look entirely different to those of us who travel to the moon, Dr. Alter reports in *The Griffith Observer* (Aug.). The corona should be observable continuously throughout the lunar daytime, which lasts for over 27 days, and under far better conditions than we find here even during total eclipses.

Science News Letter, August 23, 1952

GEOGRAPHY

## Propose Ship Tunnel In Honduran Mountains

➤ A GIGANTIC ship tunnel has been proposed as a supplement to the Panama Canal. It would burrow under the mountains of Honduras for 146 miles.

The proposal was made to the International Geographical Union meeting in Washington by Dr. William Herbert Hobbs, 88-year-old University of Michigan geologist. He had previously proposed a ship tunnel across Mexico's Tehuantepec Isthmus, but Mexico would have none of it.

The tunnel would actually be double shafts, dug at sea level, running about 150 feet apart. This way, Dr. Hobbs pointed out, they would be virtually atom bomb proof. Dr. Hobbs also said that this would be better than trying to make the Panama Canal bigger or trying to make it a sea-level canal.

Ships would be hauled through by electric locomotives, Dr. Hobbs said.

Science News Letter, August 23, 1952

AERONAUTICS

## Field Offices Issue Student Pilot Certificates

➤ STUDENT PILOTS will now have flying certificates issued to them at field offices of the U. S. Civil Aeronautics Administration where they take examinations instead of the central office in Washington.

It is a simplification procedure, resulting from a CAA-Industry conference recently held in Oklahoma City, one object being to encourage more private flying, particularly on the part of young people.

Written examinations taken by would-be pilots will be corrected by CAA agents at the field offices instead of being sent to Washington to be graded. This not only shortens the time required, but enables the examiner to explain to a student his weaknesses in aeronautical knowledge as revealed by the examination. Temporary medical certificates from local physicians may soon be accepted.

CAA is taking several other steps to offset what some regard as a serious lack of interest in flying on the part of young men. There is, it is claimed, danger of a future shortage in manpower to fly America's civil aircraft. CAA has just held in Washington a conference of aviation officials and educators in the hopes of creating a greater interest in aviation on the part of school and college students.

Also it has recently sent to the high schools of the nation a circular urging the establishment of aviation courses. Its Office of Aviation Development is prepared to outline a one-year vocational course called "Exploring Aviation." It includes a half-year studying the materials of aviation and a half-year devoted to personnel in aviation pursuits.

Science News Letter, August 23, 1952

TECHNOLOGY

## High-Speed Photography Aids Research on Steel

➤ HIGH-SPEED MOTION picture cameras, greedily devouring film at the rate of 3,500 frames each second, are helping scientists learn more about what goes on in blast furnaces.

R. A. Buchanan of the United States Steel Company's research laboratory reported to the Photographic Society of America meeting in New York that "the blast furnace has been in use for many hundreds of years, but surprisingly little is known of the processes taking place inside the unit."

Small, built-in peep-holes allow steelworkers to peer inside the furnace and to observe the fiery mass of coke and molten metal. But forced-air drafts shoot sparks throughout the furnace so rapidly it is difficult for the eye to follow them. High-speed movies "slow down" the sparks, allowing researchers to study draft patterns.

The size of coke particles being shoved into the furnace has a direct relationship to the operation of the furnace. The super-slow motion movies have permitted studies of these particles. Sometimes the furnace may be as hot as 3,400 degrees Fahrenheit, and the brilliance of the luminous coke keeps observers from seeing it clearly.

By photographing the coke lumps and then projecting the films on a suitable viewer, it is possible to measure the lumps to obtain needed data.

High-speed photography also has revealed answers to questions regarding welding electrodes. The films showed the number of arc extinctions each second and whether the metal transfer from electrode to plate was globular or spray, Mr. Buchanan said.

The research movie camera uses a rotating prism and Kodachrome Type A color film. It photographs the blast furnace's insides through a four-inch lens. Two portrait attachments are added for electrode studies. The lens is set at f/22 when electrodes are being photographed, but an exposure meter is used when blast furnaces are being studied because of changing luminous intensities of the fiery mass within.

Science News Letter, August 23, 1952

PUBLIC HEALTH

## Get Your Right Dose of Exercise

➤ TAKE YOUR exercise this summer in the right-sized dose for you, advises the Illinois State Medical Society.

In the right doses, exercise can be one of the greatest stimulants in good, healthful living. Intelligently planned and controlled exercise speeds up all body processes.

Old cells are broken down, new cells are formed, the blood flow is increased, breathing is extended, and other body functions are stimulated. Muscles are kept in good tone. Thus the chief value of exercise is improving the coordination of nerves and muscles, and stimulating the normal processes of the body for circulation and elimination.

Excessive exercise, however, can be harmful. The office worker who takes part in running races at a picnic without being in good muscular trim is, the medical society states, asking for hours of pain. Unused muscles tighten up in knots which can actually be felt and the so-called "Charley horse" is the result.

Sudden, unaccustomed exercise can put too much strain on the heart. Many persons with heart trouble can play golf and engage in other kinds of exercise. But the ones who do this safely are those who have been examined by their physician and follow his directions about the dose of exercise for them.

Not all heart patients can take the same exercise, and not all people in the older age groups can take the same amount. The smart person, therefore, will go to his doctor for a physical examination and exercise prescription. Chances are, too, that the doctor will give a prescription for exercise doses to be taken daily or weekly the year around and not just in the summer.

Science News Letter, August 23, 1952

# IN SCIEN

MEDICINE

## "Brain Fever," Forgotten Disease, Exists Today

➤ "BRAIN FEVER," well known in medical reports and novels of the 19th century but almost forgotten since then, exists today, Dr. Louis Casamajor of the Neurological Institute of New York and the College of Physicians and Surgeons, Columbia University, declares.

He reports four modern cases in the *Journal of the American Medical Association* (Aug. 16).

Like the cases in the old medical books and fiction, these were cases of severe brain inflammation. All four patients recovered completely, which was also the rule in the historical cases.

Convulsions, loss of consciousness, paralysis, lack of coordination and a sort of bulbar palsy are the signs and symptoms Dr. Casamajor found in his patients.

In the old cases the patients were almost all children. The patients Dr. Casamajor saw were 11, six and one-half, seven and eight years.

The child may show abnormal behavior and have headaches and fever for some time at the start of the disease, or the attack may come rather suddenly after a blow or bad bump on the head.

Brain wave records are of the greatest value, Dr. Casamajor reports, in diagnosis of the condition.

Science News Letter, August 23, 1952

TECHNOLOGY

## Well-Drilling Rig Operates Off-Shore

➤ JAMES McNEILL of Placentia, Calif., was issued patent number 2,606,003 for a method of drilling oil and gas wells from barges floating in rough water of depths of 400 feet or more. He assigned his patent to the Union Oil Company of California.

A barge with the drilling apparatus is anchored securely over the drilling site. Suspended from a crane, the drill operates in a semi-flexible case that accommodates the usual pitch and roll of the barge due to heavy waters. Although other drilling methods can be used, rotary drilling is preferred, the inventor says.

Barges with high superstructures often are sunk on location when off-shore wells are to be drilled. The drilling equipment is operated from the top of the superstructure. But that system is limited by the depth of the water at the drilling site and also by the choppiness of the water. Mr. McNeill's invention is intended to overcome these difficulties.

Science News Letter, August 23, 1952

# ENCE FIELDS

MEDICINE

## Ragweed Tough, So Drought No Pollen Aid

➤ THE DROUGHT has not brought any relief for hay fever sufferers. Ragweed, which produces most of the hay fever-causing pollen, is tougher than either corn or cotton in surviving a long, dry spell.

If pollen counts are low in your city, it is because the minute grains are only now being flung into the atmosphere. Labor Day weekend usually brings top counts for the pollen season to communities not ragweed-free.

Ragweed plants come in two varieties, tall and short. The tall kind is broad-leaved, the short a distant relative of the chrysanthemum, whose pollen is also sometimes bothersome to hay feverites. Both varieties, however, are simple and easy to kill with 2,4-D sprays.

The pollen count tells how many grains of pollen are found in a cubic yard of air. The grains are picked up on slides coated with petroleum jelly and exposed for 24 hours, then counted in a laboratory.

Allergy experts have learned that pollen counts cannot be predicted accurately, even from one day to the next, but they do know that the higher the humidity, the fewer the number of grains floating about.

Daily changes in the weather can shift the pollen count substantially. If, for instance, clouds cover the sun during early morning hours when pollen grains are usually flung out, little pollen will be released that day.

Best relief for hay feverites is to go to a pollen-free area. Next best is air-conditioning, either in public places or at home. Shots and drugs, particularly if taken well before the season starts, help to relieve the sufferers' misery.

Science News Letter, August 23, 1952

MEDICINE

## Liver Damage Found in Chromium Plate Workers

➤ WARNING of a new danger to workers in the chromium plating industry appears in a report to the *Journal of the American Medical Association* (Aug. 9).

The report is from Drs. Luke R. Pascale, Sheldon S. Waldstein, Gertrude Engbring and Paul B. Szanto, and Alvin Dubin, M.S., of the Hektoen Institute for Medical Research of Cook County Hospital and Stritch School of Medicine of Loyola University, Chicago.

These scientists discovered signs of liver damage in five workers in a chromium plating factory. Liver injury has not previously been considered a likely result of industrial exposure to chromium compounds, although these are known to damage skin, nose and mouth linings and kidneys.

In four of the five workers examined, no symptoms of liver damage had developed. The fifth worker came to the hospital with jaundice, lack of appetite and other symptoms suggesting liver disorder. Eight of her fellow workers in the plant were then examined and four found to have some liver damage without symptoms. The five had been employed in chromium plating for from six months to five years.

The subtle nature of this chromium poisoning of the liver suggests, the Chicago scientists point out, that other cases may have been overlooked. Discovery of existing cases shows need for greater preventive measures.

Science News Letter, August 23, 1952

ENTOMOLOGY

## Another Poison in DDT-Prostrated Roach

➤ THE BLOOD of a roach prostrated by DDT contains another poisonous substance besides the DDT, Drs. James Sternburg and C. W. Kearns of the University of Illinois, Urbana, discovered.

The nature of this other poison and its relation to the way DDT acts to poison, as well as the effect of temperature on the other poison, are now being investigated.

Studies showing the existence of the second poison in roach blood are reported in *Science* (Aug. 8).

Science News Letter, August 23, 1952

GENETICS

## Cells Can Transform into Cancer in at Least 6 Ways

➤ NORMAL BODY cells may be transformed into cancer cells in at least six different ways, Dr. T. M. Sonneborn, geneticist at Indiana University, Bloomington, believes on the basis of his studies of paramecia, single-celled animals that live in water.

"In my opinion, there is no one universal cause and mechanism of origin of cancers," he declares in a report to the American Cancer Society which has supported the research.

"The basic fact is cellular transformation, and this is now known to occur in at least six ways: 1. changes of cell state that reproduce themselves independently of mutations or viruses; 2. mutation of viruses from an inactive to an active form; 3. the action of viruses in changing the concentration of cellular enzymes; 4. changes in susceptibility to virus infection due to gene mutation; 5. increases in virus concentration due to mutation of a principal controlling gene, or to increase in dosage of that gene; 6. persistent slowing up of cell growth, due to mutation of any gene, which acts both to increase cellular concentration of virus (when a virus is present) and to produce cell transformations that are independent of viruses."

Science News Letter, August 23, 1952

PHYSIOLOGY

## Red Better Than Yellow For Air-Sea Rescue Gear

➤ LIGHT, BRIGHT scarlet is a better color than yellow for rafts, lifeboats, life-preservers and other air and sea rescue gear, Navy medical researchers find.

The light scarlet, scientifically known as Munsell 7.5 Red, can be seen at greater distances than the bright chrome yellow now in use.

Even people with the best of color vision are color blind to yellow and blue under certain conditions, the Navy tests showed. Both colors appear as gray. But the colors on either side of yellow in the spectrum, that is, green and red, can be distinguished.

Procurement problems for bright green colors are difficult, so red, which is easily obtainable in brilliant values, becomes the most efficient and practical for far-distance visibility.

Reason for the original choice of bright yellow for life-saving equipment was that at closer ranges or when the yellow area is very large, bright yellow is the most conspicuous and has the most attention-getting value. Even at fairly close range, however, yellow life rafts were found to blend with the bright reflections of the sun on the water, while the red ones remained visible.

The spot of color is more easily detected when it is lighter than the background than when it is darker, the studies also showed. This means that in the case of air-sea rescue equipment, choice of color must be guided by the kind of weather likely to occur and, therefore, the apparent color of the sea in the region of likely use.

The findings are reported by Lt. Comdr. Dean Farnsworth and two of his assistants, research psychologists Florence L. Malone and Mary S. Sexton of the Naval Medical Research Laboratory at New London, Conn., where the studies were made.

Science News Letter, August 23, 1952

MEDICINE

## Acute Bursitis Helped By Treatment With ACTH

➤ ACTH, PITUITARY gland hormone famous as an arthritis remedy, is good medicine for bursitis, Drs. Charles LeRoy Steinberg and Andries I. Roodenburg of the Rochester, N. Y., General Hospital find.

Five patients with acute bursitis and one with chronic bursitis of the shoulder got relief of the excruciating pain within a few hours after an injection of ACTH, the doctors report in the *Journal of the American Medical Association* (Aug. 16).

The five with acute bursitis of the shoulder got back normal function of the shoulder, and the one with chronic bursitis got almost completely normal function.

Two injections of the hormone on the first day and one on each of the two succeeding days seem to be enough treatment in the usual case.

Science News Letter, August 23, 1952

TECHNOLOGY

# Oil Drilling An Art

**Bailing up seepage was the method used to recover petroleum until 1859 when the Titusville 69.5-foot well was drilled, marking the beginning of our oil industry.**

By A. C. MONAHAN

➤ DRILLING THE earth for oil was a relatively simple job back in 1859 when the 69.5-foot Titusville, Pa., well was completed. From it to 1949 and the 20,521-foot drilled hole in Sublette County, Wyoming, is a matter of nearly 3.9 miles in depth and 92 years. During this time drilling has become an art requiring high-grade technical skill and expensive scientific equipment.

Petroleum was known and used for centuries before the Titusville well was drilled. It was obtained from places where it seeped out of the ground or into the bottom of dug ditches. It was used for "medicine" but was coming into wider use for kerosene for lighting.

Wells were drilled long before the Titusville oil project, but they were largely to obtain water or salt from brine. The important fact about the Titusville well is that it established drilling as the method of recovering hidden oil and marks the beginning of the modern oil industry.

Early drilling equipment was a very simple tool, supported by a crude tripod and operated by manpower. The drill had either an up-and-down movement or a rotary movement much like the soil auger. Progress was slow but wells over 100 feet in depth were drilled by them.

## Steam Power Used

In drilling the Titusville well, however, steam was used for power. William A. Smith, who drilled it, had long experience in drilling brine wells and used the type of equipment with which he was familiar. He used a six-horsepower engine, fired by wood. His drilling bit was made out of round iron and had a 1.5-inch cutting edge. When completed the well produced about 20 barrels of petroleum a day.

Following rapidly after this Titusville well, perhaps better known as the Drake well after Col. Edwin L. Drake, its promoter, came many other wells not only in Pennsylvania but in Ohio and other states. Kerosene was in demand because so-called coal-oil lamps were rapidly replacing candles in American homes. Methods of refining the crude to obtain kerosene were already known. Wax and lubricating oils were obtained as by-products.

Gasoline, the primary product of petroleum production today, was wasted. The internal combustion engine had not been developed. Also wasted in early refining were the several hundred chemicals, now recovered from petroleum, that play a very important part in American life with hundreds of essential applications.

Before the end of the century, the demand for kerosene greatly increased, gasoline came into wider usage, and there was a growing need for other products from petroleum. The result was many new wells, and the search for oil went deeper and deeper into the crust of the earth. By 1900, wells 1,800 feet in depth had been drilled, and equipment for what was then deep-drilling had been developed.

## Gasoline Engine Developed

The development of the gasoline engine, and the automobile and the airplane that it makes possible, turned attention to gasoline production. Increased demands for gasoline and heating oils during the past three decades or so have forced oil producers to go deeper into the earth for supplies.

Now wells over 10,000 feet in depth are producing oil, and a few have been drilled close to the 20,000-foot range. For these great depths special drilling equipment has been developed.

Two principal methods of drilling for oil are in use, the so-called cable-tool method and the rotary bit method. The first is employed principally in drilling shallow wells. The rotary bit method is used for both shallow and deep wells, to account for perhaps 90% of the drilling of today.

The cable-tool method uses a drill which is given an up-and-down movement. The drop of the drill pounds and cuts the rock at the bottom of the hole. In action, it is somewhat like the hand drill driven by sledge hammers used in stone quarrying.

## Auger-Like Bit

In earlier types, it was a simple device consisting of a drill hung from the end of a horizontal pole so swung that it could be given an up-and-down movement. Modern cable-tool equipment is a great improvement over the early types. This type of drilling is sometimes used even for deep wells where hard rock is encountered or where accurate samples of the rock penetrated are desired.

The rotary method uses a bit that cuts through earth and rock with a rotary movement, and may be likened to the ordinary carpenter's bit or a soil auger. To be able to cut rock, however, it has to be made of special materials, and the drill debris is removed by a liquid mud instead of by a spiral groove on the bit and shaft.

The bit is kept in almost continual rotation by a hollow shaft that extends to the surface and that is rotated by machinery in the drilling rig that stands above the hole. The shaft is made up of jointed sections so that as the hole grows deeper and deeper new sections can be added at the surface.

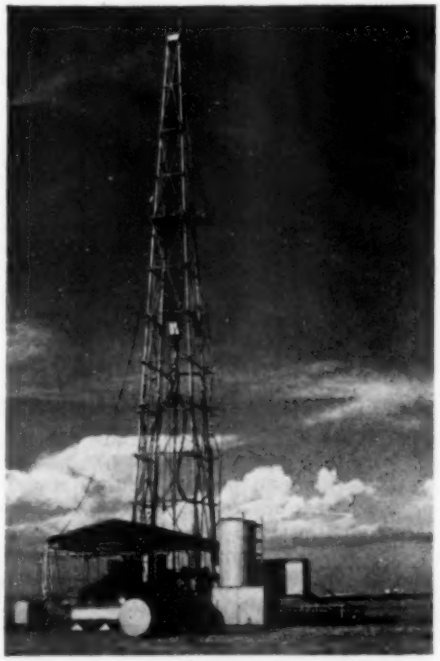
The shaft is hollow so that it may be used to force what oilmen call "mud" down to the bit. Mud is a watery mixture containing clay and sometimes powdered minerals such as barites, chemically barium sulfate. This mud cools the bit but it also brings the debris loosened by the bit to the surface.

## "Pulling" the Bit

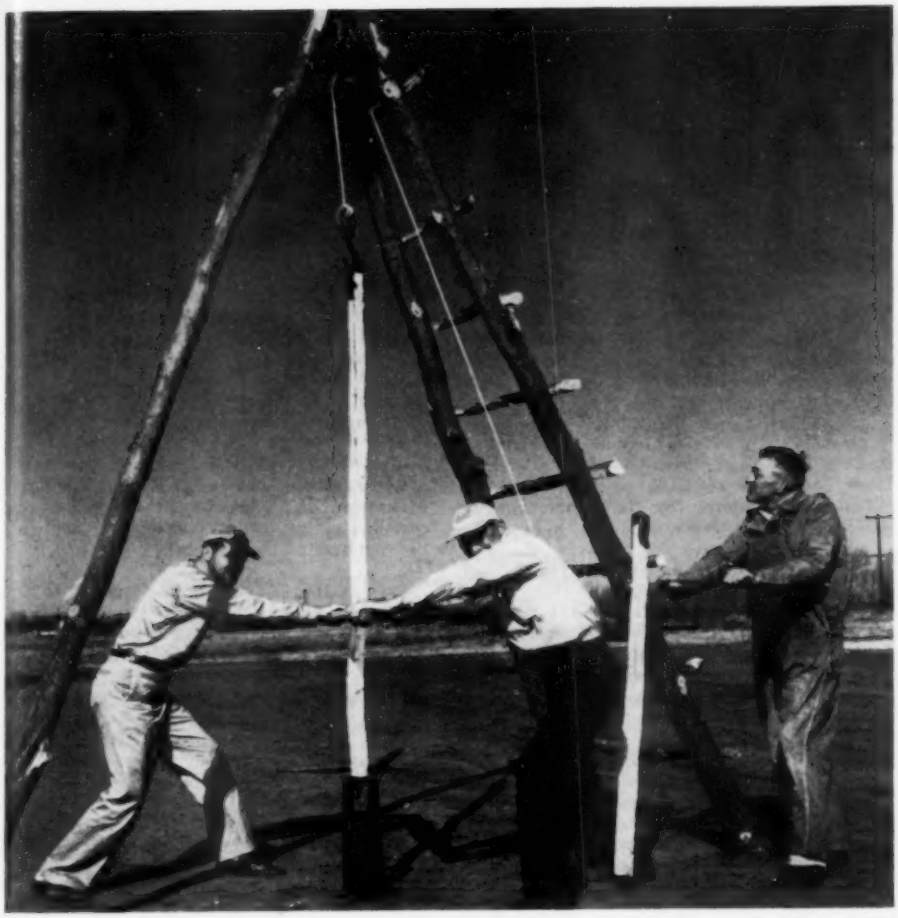
The debris-carrying mud comes up through the well in the space between the shaft and the outside circular wall. Part of it may be deposited on the walls of the hole to help keep them from caving in and also to seal off water seepage into them.

From time to time new cutting bits have to be installed to replace those worn by usage. This requires what the industry calls "pulling" the bit. It means that the shaft and bit must be raised and section after section of the shaft removed until the bit reaches the surface.

When the new bit is positioned to replace the one removed, it is lowered into the hole and the shaft rejointed to its former length. This pulling job is a diffi-



*PORTABLE OIL RIG—This modern portable drilling equipment costs about $250,000 and can reach down to depths of more than 9,000 feet.*



***DRILLING 50 YEARS AGO—A replica of a portable hand drill used about 1900 is shown here. It was operated by turning manually a hollow, auger-like bit. Its cost was about $10 and it could drill a hole 150 feet deep.***

cult one that requires much power, highly skilled labor, consumes time and greatly adds to the cost of drilling, particularly in the deep wells of today.

Considerable power is required to rotate the shaft and bit during drilling, and the deeper the hole, the more is needed. The power-applying equipment is within the so-called derrick, a trestle-work tower some 200 feet high that straddles the hole being bored. The derrick is an important tool in well-drilling. Within it, in addition to the rotary table that turns the shaft's bit, is the hoisting equipment for pulling the shaft and bit, pumps and hose for circulating the drilling fluid, valves and equipment for controlling pressure, other essential equipment, and space in which shaft extensions and casing pipe can be stood in upright position ready for use as needed.

## Portable Drilling Derricks

Many derricks, with much of the equipment removed, are left as permanent installations at the wells to be used later if pumps or casings have to be pulled. However, portable drilling derricks that can be transported from site to site are coming into use.

A type of portable drilling rig used by the Shell Oil Company may cost as much as $250,000 completely equipped, but it can be used over and over again and can be employed in drilling to depths approaching 10,000 feet.

## Special Steel Shaft

The shaft that carries the bit is a special problem in deep drilling. It is made of special steel and must be strong enough to bear its own weight as a bit is being pulled or lowered back in the hole. Also it must be strong enough to withstand the twist that it transmits from the turntable in the derrick to the bit below. It must be a flexible steel because the upper end may have to make several complete revolutions before the bit itself starts to revolve.

Many problems are encountered in drilling to great depths that are of little concern in shallow drilling. The length of the bit shaft is only one. Keeping the hole being drilled straight is another. Formations encountered by the bit may cause it to deviate from the straight downward direction.

Such deviation causes trouble, sometimes being serious enough to cause the abandonment of the well. A weight indicator, which measures the pressure, or weight, on the bit helps the driller keep a proper pressure on the bit. Too much pressure is one cause of a crooked hole.

In drilling a new well, logs of wells already bored within many miles of the site may be of great help to the driller. They give him information concerning underground formations.

A well log is a record of the geological formations encountered in drilling. It is general practice to make such records. Logging can be done by examination of the drilling mud coming to the surface and of cores made by a special bit, and sometimes by the rate of progress made by the drill.

## Electric Well Logging

Electric logging has come into use recently. An electrode is lowered into the well. Various rocks, sands and clays offer different electrical resistance. The resistance offered by the various formations as the electrode is lowered on the end of a conducting cable is registered at the surface on a potentiometer.

When oil is struck in drilling, the pressure of the gases contained in the petroleum may cause the crude to rise to the surface, or even above the surface. Few "gushers" occur today, however, because special devices are used to prevent oil coming to the surface from escaping from the well casing. The product of the well is led through pipes to holding tanks or into gathering pipelines.

If much gas is contained, it is separated by gravity in the separation tanks. If only a minor amount of gas is contained, it may be wasted. If in larger quantities, it is fed into gas lines to add to the supply of natural gas or, in some cases, put back under pressure to the oil-bearing formation to create a pressure to increase oil flow.

Science News Letter, August 23, 1952

The *earth* radiates from its hot interior more heat than it receives from outer space.


## Change-of-Address Coupon

In requesting change of address, please give (1) your name, present address, and code line exactly as your magazine is now addressed. Give your new address (2) exactly as you wish the magazines to come to you hereafter. Mail this entire coupon to Science News Letter, 1719 N St., N. W., Washington 6, D. C.

Do this at least three weeks before change of address is to become effective. Please renew early to avoid missing any copies.

(1)
NAME.....
OLD ADDRESS.....
CITY.....ZO.....STATE.....
CODE LINE.....

• • •

(2)
NEW ADDRESS.....
CITY.....ZO.....STATE.....

8-23-2

# Books of the Week

**For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. books in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N. W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.**

ANCIENT SPARTA: A Re-examination of the Evidence—K. M. T. Chrimes—*Philosophical Library*, 527 p., illus., $8.75. Using new material excavated at the ancient city, the author's object is to trace the constitutional and social survivals in later Sparta back to their roots.

THE ARAB REFUGEE PROBLEM—Joseph B. Schechtman—*Philosophical Library*, 137 p., illus., $3.00. The author has given the background on the problem of 750,000 Arabs living in refugee camps. He discusses the possible solution of resettlement.

BENJAMIN DISRAELI: Earl of Beaconsfield—Cecil Roth—*Philosophical Library*, 178 p., illus., $3.75. This biography traces the Jewish part of Disraeli's background and discusses the influence it had on his career and policies.

BIOGRAPHY OF AN IDEA: The Story of Mutual Fire and Casualty Insurance—John Bainbridge—*Doubleday*, 381 p., illus., $4.00. In the 200 years since Benjamin Franklin founded his company, the number of insurance companies in America has grown from one to 4,480.

BIRDS AND THEIR NESTS—Olive L. Earle—*Morrow*, 64 p., illus., $2.00. A child's book with interesting descriptions of 42 varieties of birds and their nests.

COLLEGE PHYSICS—Francis Weston Sears and Mark W. Zemansky—*Addison-Wesley*, 2nd ed., 912 p., illus., $8.50. Some new material has been added along with a completely new set of problems to modernize this standard text.

CRISIS IN THE MIDDLE EAST—Edward Latham, Ed.—*H. W. Wilson*, 189 p., $1.75. Reprinted articles that touch briefly on current crises. Bibliography included.

ELECTRODYNAMICS: Lectures on Theoretical Physics, Vol. III—Arnold Sommerfeld, translated by Edward G. Ramberg—*Academic Press*, 371 p., illus., $6.80. Presenting a four-dimensional theory of electrodynamics as the simplest introduction to the theory of relativity.

Sprays direct from your mixing bucket weed killers. Rose and Shrub sprays, etc. Also sprays any soluble fertilizer such as Ammonium Sulphate evenly and without burning the lawn. No hand pumping, water pressure does the work. 1 gal. concentrated in mixing bucket makes 10 gals. spray. Will not clog on soapy sprays. All-metal with filter screen. Also pumps out small fishponds when desired. Aerates fishponds with oxygen from the air in few minutes. Keeps lawns, shrubs, fishponds in tip-top shape with less work and investment. Fully complete. 5 day trial money back guarantee. Dealers solicited. Literature on request or sent COD if desired plus postage. Sent prepaid with remittance of $1.98. Prompt shipment.

**National Laboratories**
**11800 S. E. Linwood Ave., Portland 22, Ore.**


THE ELECTROMAGNETIC FIELD—Max Mason and Warren Weaver—*Dover*, 389 p., illus., paper, $1.85. Paperbound student's edition of textbook originally published in 1929.

FOLLOW THE SUNSET—Herman and Nina Schneider—*Doubleday*, 43 p., illus., $2.75. A lovely illustrated book for children, making clear the changing time around the world and describing the activities in other lands that come with the setting of the sun.

GERMANY TODAY AND TOMORROW—Henry J. Kellermann—*Govt. Printing Office*, Dept. of State Publication 4655, 14 p., paper, 10 cents. Based on an address by the Director of the Office of German Public Affairs.

HEALTH RESOURCES IN THE UNITED STATES: Personnel, Facilities and Services—George W. Bachman—*Brookings Institution*, 344 p., illus., $5.00. Material presented was collected during a three-year study of the nation's health services in order to determine the extent of our health resources. The most striking health advance has been among children in the first five years.

HISTORY OF THE CATTLE INDUSTRY IN SOUTHERN ARIZONA, 1540-1940—J. J. Wagoner—*University of Arizona Press*, Social Science Bulletin No. 20, 132 p., illus., paper, $1.25. The complicated system of land ownership in Arizona is one of the greatest problems facing cattlemen.

MAN AND THE BIOLOGICAL WORLD—J. Speed Rogers, Theodore H. Hubbell and C. Francis Byers—*McGraw-Hill*, 2nd ed., 690 p., illus., $5.75. New material on evolution, photosynthesis, hormones and vitamins has been added to bring the text up-to-date.

MECHANICS OF THE GYROSCOPE: The Dynamics of Rotation—Richard F. Deimel—*Dover*, 2nd ed., 192 p., illus., paper, $1.60. Paperbound student's edition of textbook originally published in 1929.

OPTICKS: Or a Treatise of the Reflections, Refractions, Inflections and Colours of Light—Sir Isaac Newton—*Dover*, Based on the 4th edition London, 1730, 406 p., illus., paper, $1.90. A student's edition of the classic. Foreword by Albert Einstein.

PROBLEMS OF LIFE: An Evaluation of Modern Biological Thought—Ludwig von Bertalanffy—*Wiley*, 216 p., $4.00. This book originally appeared in German under the title, DAS BIOLOGISCHE WELTBILD. It emphasizes the unity of science and the unitary conception of the processes of life.

PROCEEDINGS VOLUME OF THE GEOLOGICAL SOCIETY OF AMERICA FOR 1951—H. R. Aldrich, Ed.—*Geological Society of America*, 217 p., illus., paper, $1.50.

RECENT ADVANCES IN NUTRITION RESEARCH WITH EMPHASIS ON THE NEWER B VITAMINS: Proceedings of the Scientific Sessions of the Seventh Annual Meeting—A. E. Axelrod and others—*National Vitamin Foundation*, 129 p., illus., paper, $1.50.

SEAWEEDS AND THEIR USES—V. J. Chapman—*Pitman*, 287 p., illus., $6.00. The author believes that one primary reason for the failure of seaweed industries is their concentration on one aspect only, such as the production of iodine or cattle feed.

THE TREATMENT OF ACUTE DEHYDRATION IN INFANTS—A Working Team appointed and advised by the committee on Acute Infections in Infancy—*Her Majesty's Stationery Office*, Medical Research Council Memorandum No. 26, 48 p., illus., paper, Approx. 75 cents. Price correction.

UNITED STATES GOVERNMENT GRANTS UNDER THE FULBRIGHT ACT—*Conference Board of Associated Research Councils*, 43 p., paper, free upon request to publisher, 2101 Constitution Ave., Washington 25, D. C. A list of awards together with general information about availability and applications procedures.

WHAT'S INSIDE OF ME?—Herbert S. Zim—*Morrow*, 32 p., illus., $1.75. One in a series of books planned for parents and children to read together. This one is intended to help children understand their bodies.

WHAT'S INSIDE OF PLANTS?—Herbert S. Zim—*Morrow*, 32 p., illus., $1.75. Another "Read-it-to-me" book explaining with words and pictures the different parts of plants.

WHITHER EUROPE—UNION OR PARTNERSHIP?—M. J. Bonn—*Philosophical Library*, 207 p., $3.75. A former financial adviser to the Weimar Republic strongly urges a system of multiple partnerships for the countries of Europe.

THE WONDERFUL EGG—G. Warren Schloat, Jr.—*Scribner's*, 48 p., illus., $2.25. A photographic story about chickens and eggs giving simple answers to children's questions.

**Science News Letter, August 23, 1952**

GEOGRAPHY

## Conservatism of Negroes Blocks African Progress

➤ THE MOST difficult obstacle to progress in East Africa is the African Negro, the International Geographical Union was told in Washington.

The African Negro, with his conservative habits and ideas, has a soul that reacts fundamentally differently from that of Europeans, Ernst Weigt, German geographer, told a symposium on tropical Africa. Therefore, he said, development in East Africa is far more a question of psychology than of modern economy.

To change the mind of the natives takes no less time than to find out by trial and error what can be grown in Africa. Neither problem, Mr. Weigt stated, can be solved by a mere transfer of methods from the very different world of the white man to that of the Negro.

The German scientist told the symposium that agriculture is and always will be the most important activity of the people of East Africa. However, to intensify agriculture without introducing proper soil conservation methods will end in disaster, he said.

East Africa, he concluded, can play its part in feeding the world, but only by slow development and not without hard toil by both the Negro and the white man.

**Science News Letter, August 23, 1952**

ENTOMOLOGY

# Cicada Not Harbinger

**Insect visitor at Science Service identified as species common to Pennsylvania, after staff writers debate whether appearance foretells locusts due in 1953.**

**See Front Cover**

➤ WHEN IS a cicada a harbinger of great events in the future and when is it just another cicada?

SCIENCE SERVICE has found out.

Preceding all the staff writers to work one morning recently was a cicada—sitting lazily on a third story window ledge, looking as though it were about to jump on the nearest typewriter and bang out a story.

Instantly the science writers thwarted that move by incarcerating the cicada in an old mayonnaise jar.

"This," said a nature expert, "is an important event. Next year many sections of the United States will be visited by millions of cicadas—so-called 17-year locusts. And this fellow is a harbinger of that great event."

"Your cicada is not either a harbinger of next year's great swarm," said another nature expert. "It is just an ordinary kind of cicada which does not stay in the ground any 17 years. It comes out every year."

Both experts being adamant in their opinions, the cicada was photographed, the result being the cover picture of this week's SCIENCE NEWS LETTER, then sent off to the Department of Agriculture in a taxi. Well, it was just a cicada. No harbinger.

Agriculture said SCIENCE SERVICE had been visited by a cicada called *Tibicen canicularis Harris,* a common species in Pennsylvania and north of there, but rarely found as far south as Washington. It also occurs westward across the northern states to Colorado. Apparently little is known about its habits or biology.

But, if it had been a harbinger, it would have been a harbinger of the great swarm of cicadas that will crawl out of the ground next May in the area from southern New York down to North Carolina and out to Illinois.

Brood X, one of the largest and most widespread of the cicada broods, which reappear every 17 years, was last seen in 1936. Millions of them will come out of the ground, mate and lay eggs between May and July next year.

These are not related to the swarms of locusts which are menacing the Middle East. Our cicadas are relatively harmless. During their time out of the ground they live mostly on fat accumulated in their long sleep. They lay eggs in the tender green branches of trees, mostly oak, but this does not affect the basic health of the tree.

The Middle East locusts are not really locusts either. They are grasshoppers in locust's clothing. In other words, they are grasshoppers that, between plagues, live obscure, solitary lives over wide areas of Africa and the Middle East. At rare intervals, for reasons not yet fully understood, the grasshoppers change their form, color and habits and become locusts. They develop gregarious and migratory habits.

In the U. S., there are 13-year as well as 17-year cicadas. They are all divided into broods, designated as to the years in which they come out. Most broods have definite geographical limitations. Of the 17 possible 17-year broods, 13 occupy definite areas, large or small. There are only scattered records of the remaining four broods. There are only two large and important 13-year broods.

A few scattered forerunners of the broods sometimes appear during the 16th year. However, this year, the Department of Agriculture has no record of any forerunners of Brood X, due next year.

Science News Letter, August 23, 1952

## • RADIO

**Saturday, August 30, 1952, 3:15-3:30 p.m., EDT "Adventures in Science," with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.**

**Dr. Charles Wharton, zoologist of Atlanta, Ga., and Cornell University, Ithaca, N. Y., and Dr. Harold J. Coolidge, associate in mammalogy at the Harvard Museum of Comparative Zoology and director of the Pacific Science Board of the National Research Council, discuss "The Wild Ox of Indo-China—The Kouprey."**

AGRICULTURE

## Tractors Not Solution for Under-developed Farms

➤ ALTHOUGH TRACTORS are of immense help to farmers clearing and leveling vast land areas for cultivation, they are not often the solution to farming problems in under-developed parts of the world.

Sometimes improved animal-drawn equipment and better hand tools must come first. Then the tractors can follow later as mechanical cultivators, the Food and Agriculture Organization of the United Nations has determined in experiments in the Indian state of Uttar Pradesh.

Another problem is one of keeping the tractors working. If no repair shops exist to fix broken machines, the tractors cannot be operated successfully over a long period of time.

Science News Letter, August 23, 1952

MEDICINE

# Rules for Chloromycetin

➤ YOUR DOCTOR will still be able to prescribe Chloromycetin for hard-to-treat diseases, such as typhoid, typhus, undulant fever and whooping cough, even though out of 8,000,000 patients treated, 177 definite cases of serious blood disorders have been discovered.

Following advice from a National Research Council committee, the Food and Drug Administration is revising the required label and advertising on this drug to caution physicians against indiscriminate use or for minor infections.

Chloromycetin, called chloramphenicol also, is one of the five antibiotic drugs certified by FDA, the others being penicillin, aureomycin, bacitracin and streptomycin.

The government's experts weighed the value of the drug against its capabilities for causing harm and decided that it should continue to be available for careful use by the medical profession in those serious and sometimes fatal diseases in which its use is necessary. This is the same kind of a decision that a doctor makes every day.

The National Research Council committee headed by Dr. John Holmes Dingle of Western Reserve University, Cleveland, urged continued study of the effect of the drug and advised doctors to make blood studies when it is administered to detect any loss of ability by the bone marrow to manufacture red and white blood cells, as happens in aplastic anemia or related conditions.

These uncommon complications in the groups studied had 50% mortality, both when Chloromycetin was the only drug administered and when other drugs were also given. About as many cases of the serious blood disorders were found in which Chloromycetin had not been administered.

Science News Letter, August 23, 1952

Two new clingstone *peaches* with reduced fuzz have been developed; they are adapted to winters of little cold, ripen early and have good quality.

**NEW METHOD HISTOLOGY SLIDES**

**Our Laboratory has recently prepared new stock of histology slides, vertebrate and invertebrates, and of the brain and cord of the cat: Cerebrum, cerebellum, optic entrance, brain-stem, and of all of the cord. Several serial sections of the cord and up to three of the brain on each slide. Surely serial sections are of great practical value in teaching. Because a single section often does not show what it is supposed to!**

**Indicate the level of the cord desired.**

**Price only 50c. 12 for $5.80; 50 for $23.75.**

**THE AGERSBORG BIOLOGICAL LABORATORY**
**Centralia, Illinois**

## Questions

ASTRONOMY—How efficient would telescopes on the moon be? p. 119.

• • •

BIOLOGY—Where are hairs found on whales? p. 114.

• • •

GENETICS—What plant is suggested as the immediate ancestor of corn? p. 118.

In how many ways can cells be transformed into cancer cells? p. 121.

• • •

GERONTOLOGY—What can be done to help keep elderly people healthy? p. 116.

• • •

MEDICINE—What is "brain fever?" p. 120.

Has the drought aided hay fever sufferers? p. 121.

• • •

PHYSIOLOGY—What color is best for air-sea rescue gear? p. 121.

• • •

*Photographs:* Cover, Fremont Davis; p. 115, British Information Services; p. 117, Levitt and Sons, Inc.; p. 118, Worcester Film Corp.; p. 119, Civil Aeronautics Administration; pp. 122 and 123, Shell Oil Company; p. 127, North American Aviation.

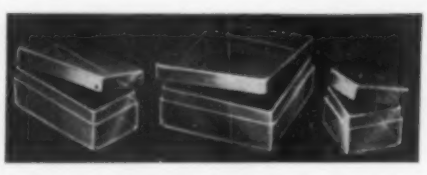
MEDICINE

### Vitamin B Offered To Treat Skin Ills

➤ NOW A vitamin B is being offered as relief for skin itching, pain and a healing agent for skin lesions ranging from ulcers to sunburn.

After clinical tests at Bellevue Hospital and New York Medical College, a cream containing 2% pathenol, the alcohol analog of pantothenic acid, one of the vitamin B factors, has been made available by the U. S. Vitamin Corporation.

Science News Letter, August 23, 1952

TRANSPARENT PLASTIC BOXES

FOR SMALL OBJECTS AND SPECIMENS.
USEFUL IN ALL LABORATORIES,
FINE FOR HOME WORKSHOPS, ETC.

Five Sizes Now Available — R. P. CARGILLE — Products For Scientific Laboratories — 117 Liberty St. New York 6, N.Y. — Write for Leaflet PB-SNL


PHOTOGRAPHY

# Photos Catch Rockets

➤ WITH THE aid of photography, new and better rockets are penetrating farther into space, or are being developed to carry havoc to the enemy in case of World War III.

R. W. Herman of the U. S. Naval Ordnance Test Station at China Lake, Calif., told the Photographic Society of America meeting in New York that special movie cameras have been built to watch rockets that fly so fast the eye cannot be relied upon for scientific observations.

The cameras cover the take-off, flying and terminal parts of the rocket path. They yield a continuous record of what went on while the missile was in the air.

Using a strip of film that moves continuously, one camera, developed by Dr. Ira S. Bowen, director of the Mount Palomar Observatory, shoots pictures on frames of film five inches long and one inch wide.

Some of the cameras are stationary and are arranged so that the films taken by a battery of them go together to form a continuous picture of the rocket's flight. In addition to a picture of the flying missile, some of the cameras, such as the Bowen Acceleration camera, have special built-in equipment to provide a record of elapsing time. From these data, more information about the rocket can be figured mathematically.

Some of photography's applications to rocket research were outlined by Mr. Herman. Among them were these:

Photographic records can show how a rocket reacts to "shifting" weight as heavy fuel is burned. They can reveal qualities of new designs difficult or impossible to obtain in the laboratory. They provide valuable clues to what is happening in the rocket motors during take-offs.

Mr. Herman predicted rockets some day will "open vast new frontiers of the universe to man's exploration," and that photography will continue to help produce those better ships.

Science News Letter, August 23, 1952

GEOGRAPHY

# Go North, Young Man

➤ THE PIONEERS are moving northward in Canada. Geographers from all over the world were given a picture of the northward advance of civilization in Canada by J. Lewis Robinson of the University of British Columbia.

The reason for the new advance, which started in 1945, Mr. Robinson said, is improved mechanized bush-clearing equipment. This has resulted in the pioneer fringe of agriculture moving northward, Mr. Robinson told the International Geographical Union meeting in Washington.

Also, the increased number of trucks is permitting settlement to spread out from the north-south rail lines along new roads. Allied developments, such as mining and transportation routes, have aided the northward march of farming.

However, Mr. Robinson said, there are some deterring factors. He pointed to what he called a lack of "pioneer spirit" among some Canadians who do not like the lower standard of living in the northern area. In addition, there are high costs of transportation to southern markets and early fall frosts; poor soils and poor water facilities discourage some.

Conditions are not the same throughout the pioneer zone, Mr. Robinson said. The fringe extends to the northwest from west-central Manitoba, passing north of Prince Albert, Saskatchewan, and terminating in the Peace River region of Alberta and British Columbia. There are some settlements north of this, for example in the Yukon and Mackenzie river valleys, but much of the farming there should properly be classed as gardening, he said.

Changes in the type of cash crops, better clearing methods and better organized government assistance all augur well for pioneer farming, Mr. Robinson concluded, despite the difficulties.

Science News Letter, August 23, 1952

METEOROLOGY

### Most of Nation Will Get Subnormal Rainfall

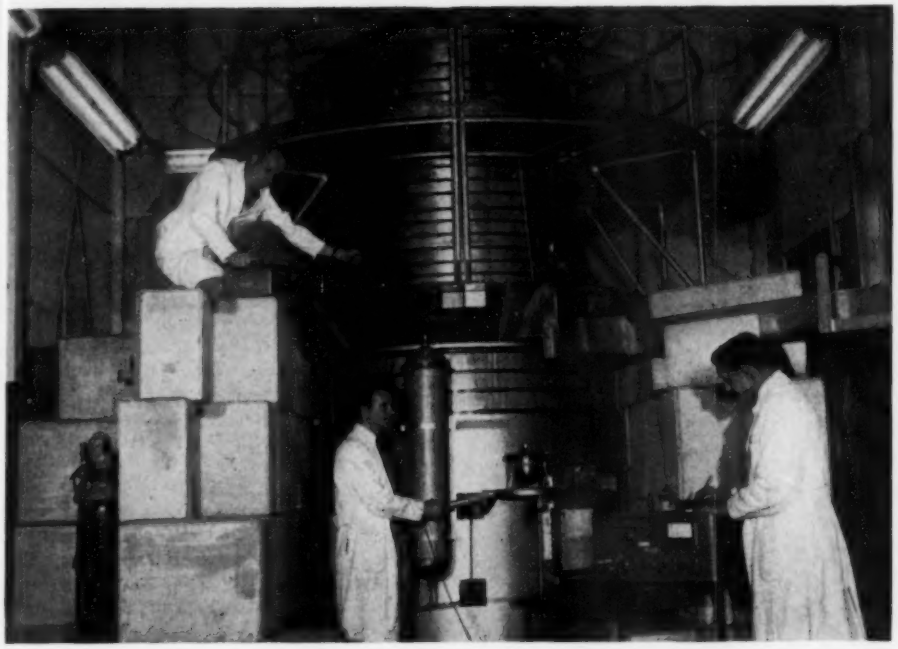
➤ RAINFALL OVER most of the nation will be "subnormal" prior to Sept. 15, but "we are not forecasting a return to drought conditions," experts at the U. S. Weather Bureau's Extended Forecast Section predict.

The term "subnormal" is in relationship to the average amount of rainfall for the particular 30-day period over past years. Averages are relatively high over the drought area between Aug. 15 and Sept. 15, William Klein, extended forecaster, told SCIENCE SERVICE.

Subnormal for Tennessee and Kentucky, for instance, means two inches or less; for the Carolinas, three and one-half inches or less; for New England, two and one-half inches or less.

Nevertheless, Mr. Klein said, the trend that appeared Aug. 1, when the long-range forecasters predicted normal amounts of rain for August and a break in the drought, has been reversed. The reversal, however, probably will not be as extreme as the conditions before Aug. 1.

Science News Letter, August 23, 1952



*WATER BOILER REACTOR—This "baby" reactor, designed and built by North American Aviation to run on less than one watt of power, is being used to learn more about reactors. The shielding concrete blocks have been removed to show the tank-line housing where the graphite reflector and core are located.*

RADIO-ASTRONOMY

# Mysterious Radio Stars

➤ HUNDREDS OF stars in the heavens are hissing at us. Astronomers are not yet certain just what these peculiar, noisy stars look like. Only one or two have definitely been seen with a telescope.

These steady hisses certainly do not come from the nearest or brightest of the stars with which we are familiar. In most cases there are no outstanding stars in the regions concerned. They signal their presence with radio waves rather than with visible light.

Some believe these peculiar stars are black stars, giving out so little light they are invisible. Others picture them as planetary nebulae, with the star in the center of the bright ring of nebulosity broadcasting the microwave radio signals.

Some believe the stars are dwarfs, others think of them as supergiants. But all agree that they are very unstable stars with frequent flares such as are noticed on the sun, but occurring billions of times more often.

Radio astronomers from all over the world gathered in Sydney, Australia, to attend the General Assembly of the Union Radio-Scientifique Internationale. This is the first time an international scientific union has met outside Europe and the United States.

When members met in informal groups, questions such as "What do you think a radio star really is?" and "What theories have your countrymen developed about radio stars?" were frequently heard.

The heavenly static was first spotted coming from the direction of the center of the Milky Way, in the constellation of Sagittarius, the archer. Radio stars also have been located in the constellations of Cassiopeia; Ursa Major, the big bear; and three in Taurus, the bull.

Radio antennas are usually not exact enough, however, to give more than an approximate direction in the sky for a radio star. Thus there are usually many faint stars visible in the radio star's direction.

An exception is the radio noise coming from the constellation of Taurus. Here the crab nebula, inside our own Milky Way galaxy, seems to be beaming broadcasts to the earth. This intriguing nebula is believed to be the expanding remnants of a star which exploded almost a thousand years ago.

Another exception is the radio star in Cassiopeia. This has been photographed as a bright knot in a much more extensive ring-shaped piece of nebulosity. The center of the ring coincides exactly with the radio source.

Radio signals also seem to come from stars outside our galaxy. They have been found to originate in the Andromeda nebula, one of our closest neighbor galaxies and yet almost five billion billion miles away. They also have been detected in three or four other bright spiral galaxies.

Science News Letter, August 23, 1952

GEOGRAPHY

## World Areas Declared Capable of Raising Food

➤ GREAT AREAS of the world, capable of raising food by the globe's increasing population, can be farmed when man has conquered the unused lands of the Amazon, Africa and parts of Asia.

Prof. E. H. G. Dobby, British geographer teaching at the University of Malaya, urged that land utilization necessary to increase agricultural production should be given high priority in geographical planning for the future.

Prof. Dobby discussed these problems as guest of Watson Davis, director of *Science Service*, over the CBS Radio Network, in a program devoted to the International Geographical Union meeting.

An extreme shortage of rice, the staple grain of the orient, plagues the Far East at the present time, Dr. Dobby reported.

Science News Letter, August 23, 1952

## *Do You Know?*

Most *lizards* can move each eye separately and probably have keener vision than human beings.

Due to improved freezing techniques, Americans are eating more *berries* now than a few years ago.

In Pakistan, a nation of 80 million people, only four or five *eggs* are available for each person each year.

A single pound of *tungsten* can be drawn into a wire 8.5 miles long, enough to provide filaments for 23,000 60-watt lamps.

The maximum *depth* of Lake Superior is about 1,300 feet; maximums for Lakes Michigan, Huron, Erie and Ontario are about 900, 750, 210 and 750 feet, respectively.

GO PLACES
LISTEN and LEARN A LANGUAGE by LINGUAPHONE
IN 20 MINUTES A DAY

World's-Standard CONVERSATIONAL METHOD

FRENCH
SPANISH
GERMAN
RUSSIAN
ITALIAN
JAPANESE

AT HOME, learn another language—easily, quickly, naturally by LINGUAPHONE. You LISTEN—you hear native men and women speak—you understand—YOU SPEAK! World-wide educational endorsement; a million home-study students.

—29 Languages Available

STOP Wishing—Start Talking. Write Today for Free Book or call for Free demonstration.

LINGUAPHONE INSTITUTE
3108 Radio City, N. Y. 20, N. Y. Cl. 7-0829

# • New Machines and Gadgets •

For addresses where you can get more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., Washington 6, D. C., and ask for Gadget Bulletin 636. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

⚙ *TV ANTENNA for all television channels, both VHF and UHF, makes it unnecessary to have two antenna installations on housetops, and works from metropolitan to fringe areas. The antenna is available in a single stack, or in two or four stacks. It uses printed-circuit filters to separate the portions of the TV range.*

Science News Letter, August 23, 1952

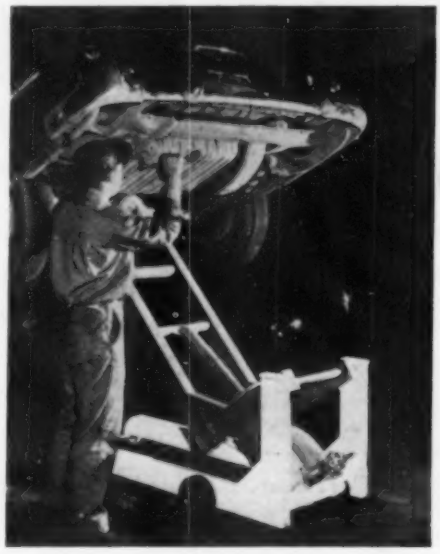
⚙ *ENAMEL FOR all types of window screens is brushed or rolled onto the wire mesh without clogging, protecting them from rust or from oxidation. Available in green, copper-tone and black, the enamel also is suitable for coating the screen frames.*

Science News Letter, August 23, 1952

⚙ *THERMOMETER WITH "adjustable stem" can be raised and lowered in a flask without dismantling the equipment. Working something like a trombone, the thermometer is made in 6½- and 11½-inch lengths, and with scales of 0-150, 0-250 and 0-360 degrees Centigrade, the figures being etched into the glass.*

Science News Letter, August 23, 1952

⚙ *PORTABLE JACK, operated from air compressed to at least 80 pounds per square inch, can lift ends of cars and trucks so that mechanics can get at the job easily. An*



*automatic safety lock holds the lift at any of its ten working heights, one of which is shown in the photograph.*

Science News Letter, August 23, 1952

⚙ *ALL-PURPOSE SCREWDRIVER has a hollowed fluted handle made of a transparent blue-colored plastic. Closed with a screw-on cap, the handle acts as a storage chamber for extra bits. The bits are locked into place on the "business end" of the screwdriver by a knurled nut.*

Science News Letter, August 23, 1952

⚙ *MAGNIFYING GLASS for industrial use has a light bulb built into its handle to illuminate the object being viewed. The light can be operated from batteries or from a 110-volt power source, depending upon the type of handle specified. The instrument's lens system magnifies five times.*

Science News Letter, August 23, 1952

⚙ *BLASTLESS BLAST burner mixes fuel gases within the burner before igniting them, thus permitting the burner to operate quietly, almost silently. Simple valve adjustments produce large or small sealing and annealing flames. They also control the flame so that soft glass, Pyrex, Vycor, or even quartz, can be worked.*

Science News Letter, August 23, 1952

⚙ *TELEPHONE WIRE, designed for use in residences and offices, improves telephone performance and blends inconspicuously with baseboards or trim. Consisting of insulated conductors entirely enclosed in an ivory- or brown-colored plastic jacket, the wire can be stapled into position easily.*

Science News Letter, August 23, 1952

# • Nature Ramblings •

## Toothy Aristocrats

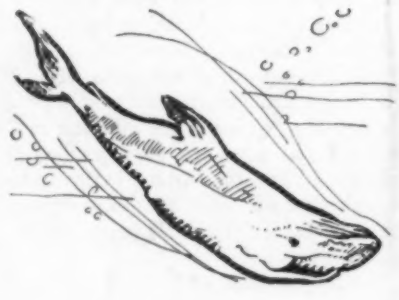
▶ THE FRIENDLESS estate of sharks is not a matter of their being parvenus. If length of lineage were the only criterion, sharks would have to be reckoned among the highest aristocracy among backboned animals.

There were sharks in the sea long before any kind of vertebrates came to live on land, and they were recognizable as sharks when other fish seemed to be uncertain whether they were going to be fish at all.

Sharks set themselves up in the aristocrat business as many another family has done in later time: by having good weapons and using them ruthlessly.

Sharks' teeth are so efficient, indeed, that many island tribes in the South Seas, having no metals or hard stones, made their wooden war clubs the practical equivalent of swords by edging them with these three-cornered dental daggers.

The primitive shark tooth is a triangle,



with cutting edges finely sawtoothed. Loosely attached at the base it comes loose readily if damaged by an over-ambitious bite, and falls out after a time in any case.

There are plenty of replacements; most sharks have several rows of unerupted teeth in their jaws, waiting their turn. There are variants upon this pattern, but all recognizable as belonging to the family.

So much notice has been taken of the teeth of the sharks because they strongly present the shark's chief function—that of an eating-machine. A shark is always hungry, and he is always hunting.

Sharks sometimes hunt in small packs, like wolves, and like wolves will turn and rend and devour any member of the pack that gets hurt.

For all their horrid appearance and unappealing ways, sharks have a decided place of their own in the world. Like the wolves to which they are often likened, they keep down the surplus of the teeming life of the sea, and, since their appetites are anything but finicky, they are at once garbage collectors and living incinerators.

Science News Letter, August 23, 1952